What is claimed is:

1. An isolated nucleic acid characteristic of human amyloid precursor protein including the nucleotides encoding codon 670 and 671 of human amyloid precursor protein 770, wherein the nucleic acid encodes an amino acid other than lysine at codon 670 and/or an amino acid other than methionine at codon 671.

2. The isolated nucleic acid of claim 1, wherein the nucleic acid encodes asparagine at codon 670 and leucine at codon 671.

3. An isolated nucleic acid complementary to the nucleic acid of claim 1.

4. The isolated nucleic acid of claim 1, wherein the nucleic acid is between 10 and 40 nucleotides.

5. The isolated nucleic acid of claim 4, labeled with a detectable moiety.

6. The isolated nucleic acid of claim 1, wherein the nucleic acid is at least 24 nucleotides.

7. The isolated nucleic acid of claim 1, wherein the nucleic acid encodes ß-amyloid protein.

8. The isolated nucleic acid of claim 1, wherein the nucleic acid encodes the entire human amyloid precursor protein 770.

9. The isolated nucleic acid of claim 1, wherein the nucleic acid further encodes an amino acid other than valine at codon 717.

10. A polypeptide encoded by the nucleic acid of claim 1.

11. An antibody specifically reactive with the polypeptide of claim 10.

12. A vector comprising the nucleic acid of claim 1.

13. The vector of claim 12 in a host capable of expressing the characteristic portion of human amyloid precursor protein.

14. A nucleotide primer complementary to sequences within 100 nucleotides of codon 670.

15. A method of diagnosing or predicting a predisposition to Alzheimer's disease, comprising detecting in a sample from a subject the presence of a mutation in a human amyloid precursor protein at a nucleotide position corresponding to codons 670 and/or 671 of amyloid precursor protein 770 or fragment thereof, the presence of the mutation indicating the presence of or a predisposition to Alzheimer's disease.

16. The method of claim 15, wherein the sequence mutation is a nucleotide substitution, wherein codon 670 encodes asparagine and codon 671 encodes leucine.

17. The method of claim 15, wherein the detecting step comprises combining a nucleotide probe capable of selectively hybridizing to a nucleic acid containing the mutation with a nucleic acid in the sample and detecting the presence of hybridization.

18. The method of claim 15, wherein the detecting step comprises amplifying the nucleotides of the mutation and detecting the presence of the mutation in the amplified product.

19. The method of claim 15, wherein the detecting step comprises selectively amplifying the nucleotides of the mutation and detecting the presence of amplification.

20. The method of claim 15, wherein the detecting step comprises detecting the loss of a restriction fragment length created by an MboII enzyme digest of the nucleotides of the mutation.

21. A transgenic non-human animal containing, in a germ or somatic cell, the nucleic acid of claim 1, wherein the animal expresses a human amyloid precursor protein or fragment thereof which encodes an amino acid other than lysine at codon 670 and/or an amino acid other than methionine at codon 671.

22. The animal of claim 21, wherein expression of the nucleic acid promotes neuropathological characteristics of Alzheimer's disease in the animal.

23. A transgenic non-human animal containing, in a germ or somatic cell, the nucleic acid of claim 9, wherein the animal expresses a human amyloid precursor protein or fragment thereof which encodes an amino acid other than lysine at codon 670 and/or an amino acid other than methionine at codon 671 and an amino acid other than valine at codon 717.

24. The animal of claim 23, wherein expression of the nucleic acid promotes neuropathological characteristics of Alzheimer's disease in the animal.

25. A host containing the nucleic acid of claim 1, which host expresses a human amyloid precursor protein or fragment thereof which encodes an amino acid other than lysine at codon 670 and/or an amino acid other than methionine at codon 671.

26. A host of claim 23, wherein the host is an immortalized cell line.

27. A host containing the nucleic acid of claim 9, which host expresses a human amyloid precursor protein or fragment thereof which encodes an amino acid other than lysine at codon 670 and/or an amino acid other than methionine at codon 671 and an amino acid other than valine at codon 717.

28. The host of claim 27, wherein the host is an immortalized cell line.

29. A method of screening for an agent capable of treating Alzheimer's disease comprising contacting the animal of claim 22 with the agent and monitoring the expression, processing or deposition of amyloid precursor protein or fragments thereof.

30. A method of screening for an agent capable of treating Alzheimer's disease comprising contacting the animal of claim 24 with the agent and monitoring the expression, processing or deposition of amyloid precursor protein or fragments thereof.

31. A method of screening for an agent capable of treating Alzheimer's disease comprising contacting the host of claim 25 with the agent and monitoring the expression or processing of amyloid precursor protein or fragments thereof.

32. A method of screening for an agent capable of treating Alzheimer's disease comprising contacting the host of claim 27 with the agent and monitoring the expression or processing of amyloid precursor protein or fragments thereof.